

GENELEC AURAL ID

Stephen Bennett gets scientific with Genelec's new headphone monitoring technology...

SOFTWARE



Several companies have developed Digital Signal Processing (DSP) solutions in an attempt to present a 'flat' frequency playback response when using headphones. Most of these either create generic EQ solutions for specific headphones or, in some cases, you can send off your own headphones for a bespoke analysis and correction profile to be generated and loaded into the company's software plug-in.

What these solutions cannot do, of course, is compensate for the shape and size of the ears and the head— all of which will have significant impact on

the effective frequency and dynamic response of the headphones. Genelec, a company renowned for their high-end active monitor speakers, has taken a different approach to the problem. Using the technique of photogrammetry, a detailed 3D representation is acquired of the engineers' upper body, head and ears. These images and videos are then uploaded to the Genelec site, a fee paid, and an AES-standard Spatially Oriented Format for Acoustics (sofa) file generated. This is then loaded into a .sofa-compatible plug-in, inserted on the master output of a Digital Audio Workstation (DAW), or stand-alone audio software to 'correct' the audio playback.

Key Features

- Enables an audio engine to precisely render stereo, surround or immersive content via headphones
- Calculates a user's Head-Related Transfer Function (HRTF) which can then be integrated into a DAW via plug-ins

RRP: €500 + VAT

www.genelec.com



The profile itself consists of a personal Head-Related Impulse Response (HRIR) – which is a time domain element – and a Head-Related Transfer Function (HRTF) that covers the frequency domain. These two elements describe how the audio travels to your ear. Sound reaching the ear from a monitor in a room is a complex mixture of phase and time-domain related information; frequency and volume damping and enhancement and other reflective properties, including head and ear shape and the density of the listener's head and body. All this information is relevant when we try and place audio in stereo positions or at the 'phantom' centre in a stereo recording. When using headphones, a lot of this information is lost, which is why mixing on these devices doesn't always translate well to loudspeakers in various listening environments. Genelec's Aural ID attempts to compensate for these deficiencies in a bespoke fashion. Designed to be used on any typical headphone, the Aural ID profile can be easily moved across DAW and computer platforms.

The Aural ID manual contains precise information on how to capture the required video and image files for processing, alongside some useful information on the technical and acoustic rationale behind the software. You'll need a friend to do the filming, a tape measure and a space about 3m square that is well-lit and without any sources of high intensity light, such as the sun coming through a window. The manual suggests some other tips that will help you get the best results and the whole process takes about four minutes. The process consists of your friend moving round you in a circle then coming in close to film your ears at various angles and distances to capture the information required to build up an accurate 3D representation of your ears, head and upper body. Genelec provide video tutorials and the process was extremely simple in practice. The hardest part for myself was keeping still for that long! The next part of the process is to grab a couple of images of each ear with a tape measure

placed alongside for size reference.

Once you have this information, the data is uploaded to the Genelec website for processing. Delivery time for the .sofa file is about two days as Genelec say the processing required is significant and they check each submission for errors. Once the .sofa file has been downloaded from the Genelec server it can be used in the DAW of your choice. The file can be loaded into any plug-in or program that accepts .sofa files and Genelec suggest a few, so I used the Noise Makers AMBI HEAD AU plug-in with Apple's Logic Pro X. The Aural ID file doesn't allow you to manipulate any parameters, though the plug-in itself does. Loading the .sofa file into AMBI HEAD was a matter of drag and drop and, of course, the effects of the Aural ID data file can be demonstrated by muting the plug-in itself.

With my current headphone-correction software, I mostly use a pair of BeyerDynamics DT990 with a bespoke correction profile, so I initially tried Aural ID with these 'phones. The difference between processed and unprocessed audio is marked and it makes you realise how 'closed in' headphones can sound. Aural ID adds directional and special information making it easier to place sounds in the stereo image, including the all-important 'phantom centre' image that's so hard to get right on headphones. I performed extensive mixing comparisons between Aural ID, a DSP-based headphone correction plug-in, and the headphones with no correction at all. The latter process, as usual, generated mixes that worked in some locations and not others. The DSP-based solution has helped me produce some excellent mixes that translate very well from speaker to headphone and system to system in the past. The 'sound' of the aural ID processing is very different to the DSP solution I use, having more of a sense of 'room' and 'air'. One of the unexpected results of this is that listening to audio via Aural ID is extremely comfortable and I found that I could work for longer and at higher levels than with the

other workflows. Mixes generated via Aural ID were excellent and it often felt like I was working in a well-treated room with excellent monitoring. Making low-frequency decisions is often difficult on headphones, but the results via Genelec's software were extremely positive. Moving over to my DT150s was interesting as these are closed-back 'phones and sound very different to the 990s yet, when Aural ID was instanced, many of these differences disappeared. I've not found a solution that would allow me to use closed-backed headphones which are excellent in noisy environments, so this was an unexpected bonus.

Genelec's Aural ID could be a life-saver for those working in stereo, surround or immersive formats, as it allows you to easily take a familiar monitoring system with you wherever you go. I'd like to see Genelec offer their own .sofa file compatible plug-in alongside the Aural ID processed file though, as I did have some problems getting the third-party software to work (nothing to do with Genelec's software I might add!). As more and more music lovers turn to headphones, I can also see how beneficial Aural ID would be on a listener's computer, personal music player or phone – or even embedded in headphone amplification itself. It's early days for these technologies and I await further developments with great interest. A pair of Genelec headphones with built in .sofa file processing would also be something to look forward to! ■

The Reviewer

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has been involved in music production for over 30 years. Based in Norwich, he splits his time between writing books and articles on music technology, recording and touring, and lecturing at the UEA.